ICD-80

SERVICE MANUAL

US Model

Ver 1.0 1998. 07

SPECIFICATIONS

Recording media	Built-in flash memory, Monaural recording
Recording time	SP: 32 minutes
	LP: 48 minutes
Frequency response	SP: 250 Hz - 3,500 Hz
	LP: 250 Hz - 2,400 Hz
Speaker	approx. 2.8 cm (1 1/8 in.) dia.
Power output	70 mw
Output	Earphone jack (mini jack) for 8 - 300 ohms earphone
Input	Microphone jack (mini jack, monaural)
	Plug in power
	Minimum input level 0.3 mV
	3 kilohms or lower impedance microphone
	Digital I/O connector (15-pin)
Power requirements	Two size AAA (LR03) alkaline batteries: 3 V DC
Dimensions (w/h/d) (incl. projecting parts and controls)	
	57.4 × 85 × 23.2 mm ($2\,^3/_8 \times 3\,^3/_8 \times {}^{15}/_{16}$ in.)
Mass (not incl. batteries)	
	Approx. 50 g (1.8 oz)
Supplied accessories	Hand strap × 1 (attached to the unit)
	Size AAA (LR03) alkaline battery × 2

Design and specifications are subject to change without notice.

IC RECORDER

MICROFILM

SONY®

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SECTION 1
SERVICING NOTES

CAUTION ON REPLACING FLASH MEMORY

The BAD-BLOCK check* must be executed, when the flash memory in this set was replaced.
The set will not operate normally, unless this check is finished.

* The BAD-BLOCK check detects an area (bad-block) in the flash memory where data validity cannot be guaranteed, and saves this information in the TOC-AREA so that a bad-block is not used.

BAD-BLOCK Check Procedure:

1. Apply 3.0 V from regulated power supply to the battery terminals.
   (The battery lid open/close detection switch S701 may be kept off)
2. Red LED and green LED light up.
3. As “Push St & Er” is displayed on the LCD, press the STOP (S703) button and the ERASE (S702) button simultaneously. (BAD-BLOCK check will start)
4. “Bad Check” is displayed on the LCD. (Check will last for about 90 sec, and keep applying regulated power supply during checking)
5. Backlight turns on (BAD-BLOCK check finished successfully) (*)
   Red and green LEDs turn off. “Good OK!” is displayed on the LCD.
   (*): In case of NG, “Bad Memory” is displayed on the LCD.
6. Press the RESET (S501) button.

Note:

- In case of NG, check the System Control IC, Memory IC, and their peripheral circuits. (Particularly, check carefully the soldering of the flash memory)
- After finishing the BAD-BLOCK check, assemble the set, load the battery, and confirm if the set operates normally.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

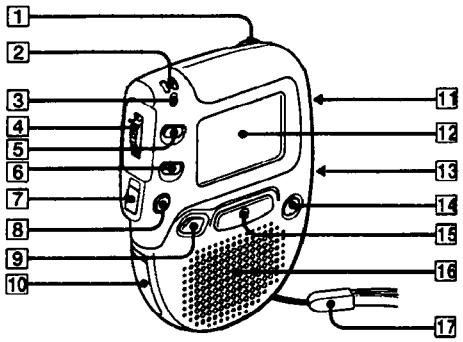
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

This section is extracted from instruction manual.

Index to Parts and Controls

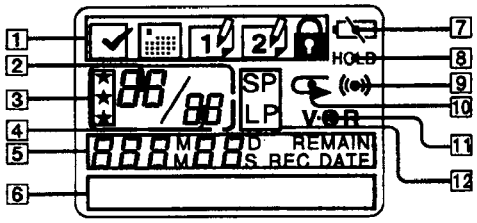
Refer to the pages indicated in parentheses for details.

Main unit



1 VOL (volume) control (14)
2 MIC (built-in microphone) (10)
3 OPR (operation) indicator (10)
4 Jog dial (8)
PLAY/STOP
⏮ / ⏭ (fast forward/fast backward)
▶/▶ (menu selection)
5 FILE button (10, 13)
6 PRIORITY button (22)
7 HOLD switch (36)
8 MENU button (8)
9 STOP button (11)
10 DIGITAL I/O connector (for connecting to a computor) (5)
11 🎧 (earphone) jack (15)
12 Display window (8)
13 MIC (PLUG IN POWER) jack (21)
14 ERASE button (16)
15 REC (record) button (10)
16 Speaker
17 Hand strap

Display window

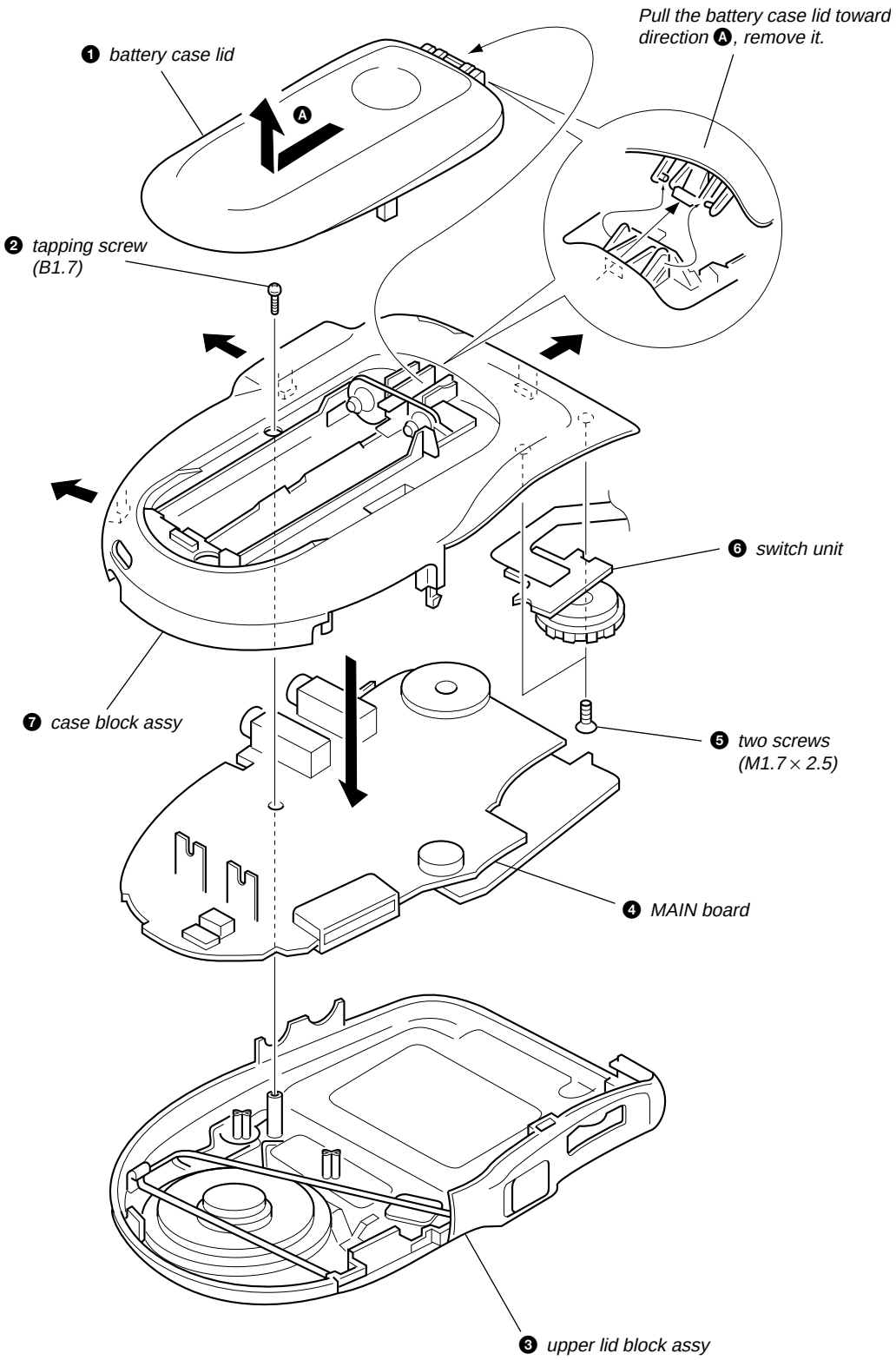


1 File icons (11)
2 Current message number (10)
3 Priority marks (22)
4 Total number of messages in a file (13)
5 REMAIN (Remaining recording time) indication (10)
REC DATE (Recording date) indication (14)
6 Current time/day indication (8)
(15:30 TUE, etc.)
Recording time indication (14)
(10:10:10, etc.)
Menu indication (8)
(ALARM OFF, etc.)
File name (11)
(ACTION , SCHEDULE, etc.)
Messages (10, 16)
(RECORD, ERASE?, etc.)
7 Battery exhausted indicator (7)
8 HOLD indicator (36)
9 Alarm indicator (32)
10 Repeat play indicator (15)
11 Digital VOR indicator (19)
12 Recording mode indication (37)

SECTION 3
DISASSEMBLY

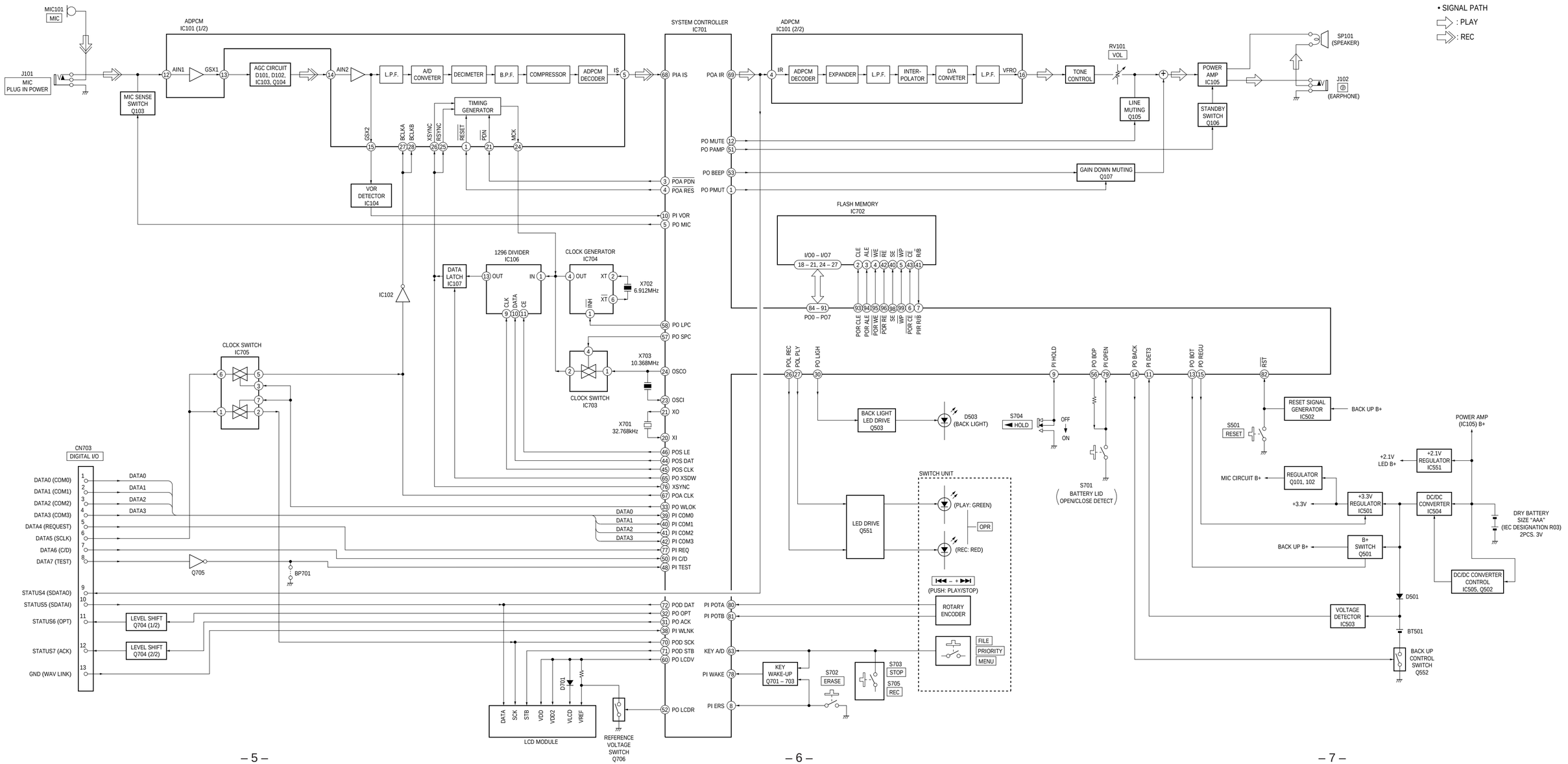
Note: Follow the disassembly procedure in the numerical order given.

BATTERY CASE LID, MAIN BOARD



SECTION 4
DIAGRAMS

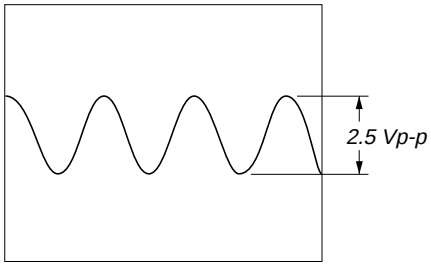
4-1. BLOCK DIAGRAM



• **Waveforms**

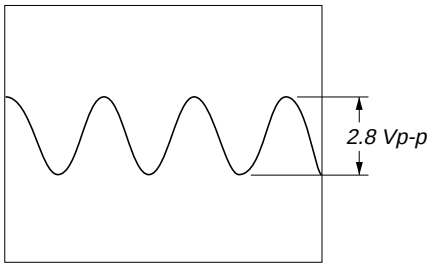
– MAIN Board –

❶ IC701 ㉑ (XO)
1 V/DIV, 10 µs/DIV



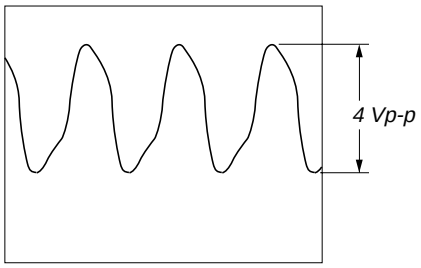
32.768 kHz

❷ IC701 ㉔ (OSCO)
1 V/DIV, 50 ns/DIV



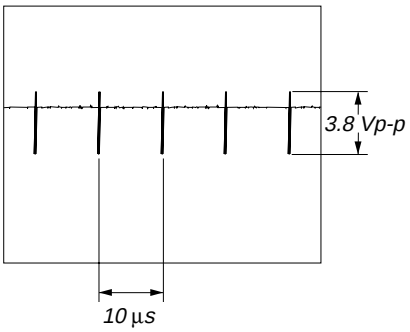
10.368 MHz

❸ IC704 ⑥ (Rec LP mode)
1 V/DIV, 50 ns/DIV



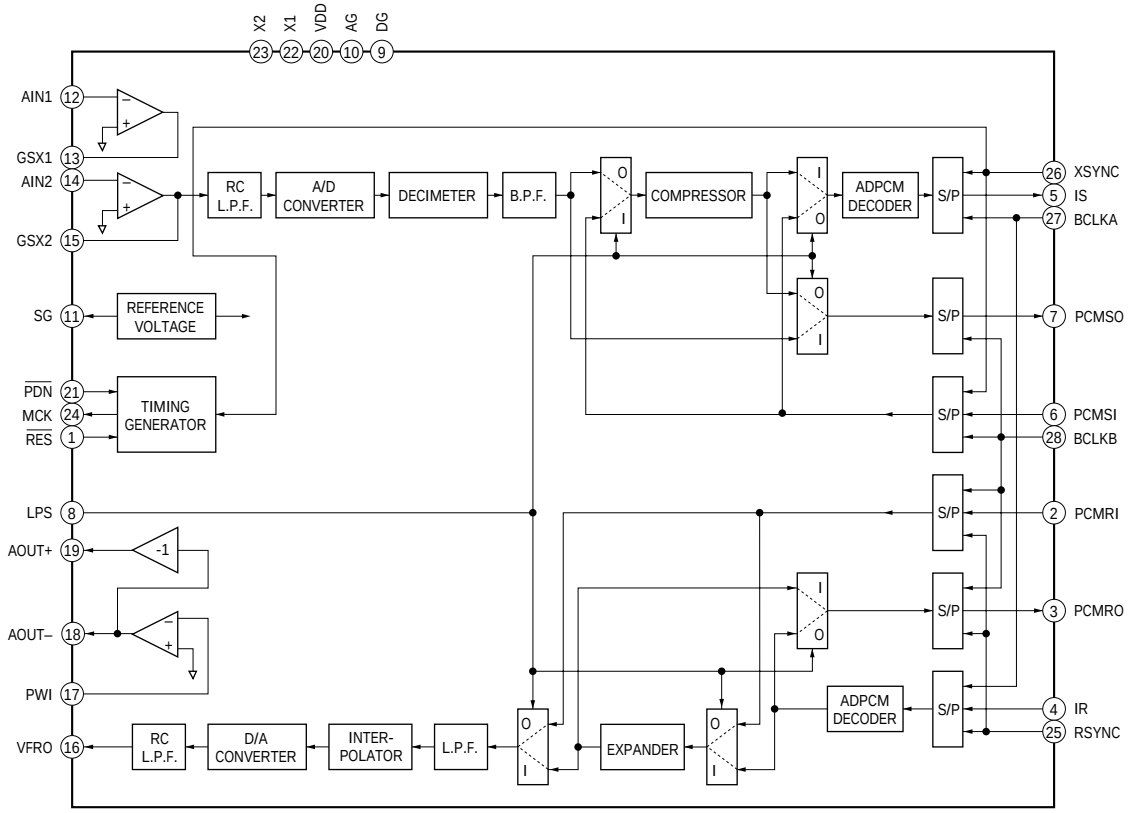
6.912 MHz

❹ IC504 ④ (LX) (Stop)
1 V/DIV, 500 µs/DIV

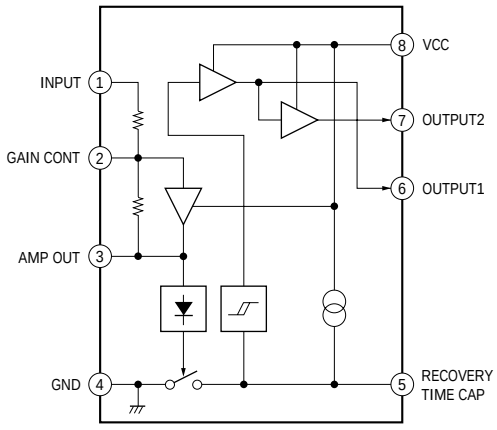


• IC Block Diagrams
– MAIN Board –

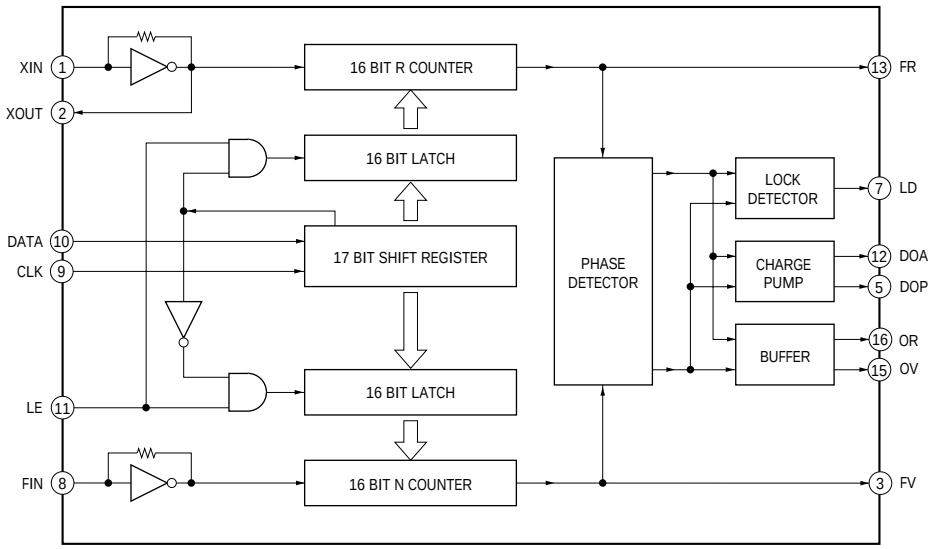
IC101 MSM7560LGS-KDR1



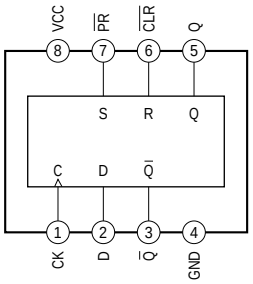
IC104 NJM2072M



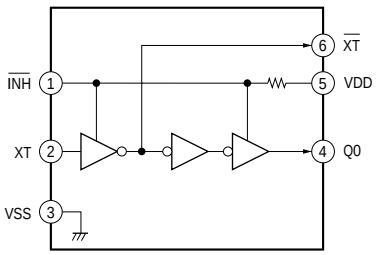
IC106 SM5158AM-E2



IC107 TC7W74FU



IC704 XC2141C21AMR



4-4. IC PIN FUNCTION DESCRIPTION

• MAIN BOARD IC701 MN102L25DSD (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Function
1	PO PMUT	O	Gain down muting on/off control signal output to the power amplifier (IC105) "H": muting on
2	PO LPCI	O	Not used (open)
3	$\overline{\text{POA PDN}}$	O	Power down control signal output to the MSM7560LGS (IC101) "L": power down
4	$\overline{\text{POA RES}}$	O	Reset signal output to the MSM7560LGS (IC101) "L": reset
5	PO MIC	O	Microphone sensitivity selection signal output for the microphone input "L": low, "H": high
6	$\overline{\text{POR CE}}$	O	Chip enable signal output to the flash memory (IC702)
7	PIR R/$\overline{\text{B}}$	I	Ready/busy monitor input from the flash memory (IC702)
8	PI ERS	I	ERASE switch (S702) input terminal When the key pressing "L"
9	PI HOLD	I	◄ HOLD switch (S704) input terminal "L": hold on, "H": hold off
10	PI VOR	I	Detect whether audio signal is entered or not input from the VOR detection circuit (IC104) "L": signal is entered, "H": no signal entered
11	PI DET3	I	Power supply voltage detection input of the back-up power supply
12	PO MUTE	O	Line muting on/off control signal output terminal "H": line muting on
13	PO BOT	O	Power on/off section signal output of the back-up power supply "H": power on
14	PO BACK	O	Connection control signal output of the back-up power supply
15	PO REGU	O	Power supply voltage detection input of the +3.3V and mic circuit power supply "H": power on
16	PO DDC	O	Power on/off control signal output of the DC/DC converter "H": power on Not used (open)
17	VDD	—	Power supply terminal (+3.4V)
18	SYSCLK	O	Not used (open)
19	VSS	—	Ground terminal
20	XI	I	Sub system clock input terminal (32.768 kHz)
21	XO	O	Sub system clock output terminal (32.768 kHz)
22	VDD	—	Power supply terminal (+3.4V)
23	OSCI	I	Main system clock input terminal (10.368 MHz)
24	OSCO	O	Main system clock output terminal (10.368 MHz)
25	MODE	I	Setting terminal for the CPU operational mode (fixed at "H" in this set)
26	POL REC	O	LED drive signal output of the OPR REC indicator (red) "H": LED on (recording mode)
27	POL PLY	O	LED drive signal output of the OPR PLAY indicator (green) "H": LED on (play mode)
28	—	O	Not used (open)
29	—	O	Not used (open)
30	PO LIGH	O	LED drive signal output of the LCD back light "H": LED on
31	PO ACK	O	Acknowledge signal output to the equipment connected to digital I/O connector (CN703)
32	PO OPT	O	OPT control signal output to the equipment connected to digital I/O connector (CN703)
33	PO WLOK	O	Output of enable control signal when loading serial data from the equipment connected to digital I/O connector (CN703) "H" active
34	VDD	—	Power supply terminal (+3.4V)
35	—	O	Not used (open)
36	—	O	Not used (open)
37	—	O	Not used (open)
38	PI WLNK	I	For detecting the connection of the equipment connected to digital I/O connector (CN703) "L": connection (link), "H": no connection
39	PI COM0	I	Link data (0) input from the equipment connected to digital I/O connector (CN703)
40	PI COM1	I	Link data (1) input from the equipment connected to digital I/O connector (CN703)
41	PI COM2	I	Link data (2) input from the equipment connected to digital I/O connector (CN703)
42	PI COM3	I	Link data (3) input from the equipment connected to digital I/O connector (CN703)

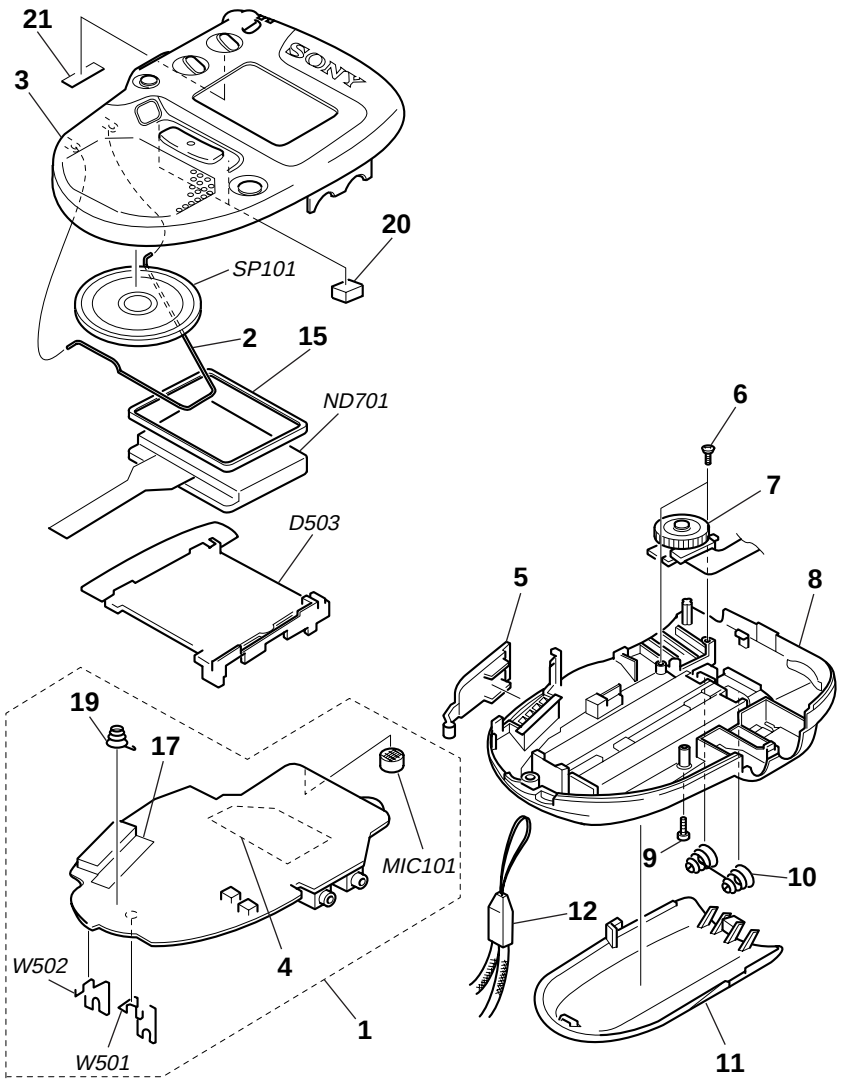
Pin No.	Pin Name	I/O	Function
43	VSS	—	Ground terminal
44	POS DAT	O	Serial data output to the 1296 divider (IC106)
45	POS CLK	O	Serial data transfer clock signal output to the 1296 divider (IC106)
46	POS LE	O	Serial data latch pulse output to the 1296 divider (IC106)
47	PI CHK0	I	Not used (fixed at “L”)
48	PI TEST	I	Setting terminal for the test mode “L”: test mode
49	PI TCLK	I	Not used (open)
50	PI C/D	I	Command/data judging signal input from the equipment connected to digital I/O connector (CN703)
51	PO PAMP	O	Standby on/off control signal output to the power amplifier (IC105) “L”: standby
52	PO LCDR	O	LCD drive reference voltage control signal output to the LCD module
53	PO BEEP	O	Beep sound drive signal output terminal
54	VDD	—	Power supply terminal (+3.4V)
55	PO CHK1	O	Not used (open)
56	PO BOP	O	Battery lid open/close detection control signal output terminal “L”: detection disabled, “H”: detection enabled
57	PO SPC	O	Master clock switching signal output in recording mode (LP/SP) (SP mode: 10.368 MHz) In SP mode, “H” is output to the clock switch (IC703) to switch over the clock
58	PO LPC	O	Master clock switching signal output in recording mode (LP/SP) (LP mode: 6.912 MHz) In LP mode, “L” is output to the clock generator (IC704) to switch over the clock
59	PO KEYV	O	Key power control signal output terminal
60	PO LCDV	O	LCD drive power control signal output to the LCD module
61	VSS	—	Ground terminal
62	BATT A/D	I	Dry battery voltage detection signal input terminal (A/D input)
63	KEY A/D	I	Key input terminal (A/D input) S703, 705 (STOP, REC), switch unit (FILE, PRIORITY, MENU) keys input
64	—	O	Not used (open)
65	PO XSDW	O	Clear control signal output to the data latch (IC107)
66	VDD (VPP)	—	Power supply terminal (+3.4V)
67	POA CLK	O	Serial clock signal output to the MSM7560LGS (IC101) (Clock signal is output during serial data transfer)
68	PIA IS	I	Recording serial data input from the MSM7560LGS (IC101)
69	POA IR	O	Playback serial data output to the MSM7560LGS (IC101)
70	POD SCK	O	Serial data transfer clock signal output to the LCD module
71	POD STB	O	Strobe signal output to the LCD module
72	POD DAT	O	Serial data output to the LCD module
73	PULL UP	I	Not used (fixed at “H”)
74	PULL UP	I	Not used (fixed at “H”)
75	NMI	I	Non-maskable interrupt input terminal
76	XSYNC	I	Input of signal detecting that serial transfer to the MSM7560LGS (IC101) started
77	PI REQ	I	Communication request signal input from the equipment connected to digital I/O connector (CN703)
78	PI WAKE	I	Key interruption processing start signal input terminal
79	PI OPEN	I	Battery lid open/close detection switch (S701) input terminal “L”: battery lid is closed
80	PI POTA	I	Rotary encoder dial pulse input of the jog dial (**I◀◀ – + ▶▶I**)
81	PI POTB	I	Rotary encoder dial pulse input of the jog dial (**I◀◀ – + ▶▶I**)
82	$\overline{\text{RST}}$	I	System reset signal input from the reset signal generator (IC502) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
83	VDD	—	Power supply terminal (+3.4V)

Pin No.	Pin Name	I/O	Function
84	PO0	I/O	Two-way data bus with the flash memory (IC702)
85	PO1	I/O	
86	PO2	I/O	
87	PO3	I/O	
88	PO4	I/O	
89	PO5	I/O	
90	PO6	I/O	
91	PO7	I/O	
92	VSS	—	Ground terminal
93	POR CLE	O	CLE control signal output to the flash memory (IC702)
94	POR ALE	O	ALE control signal output to the flash memory (IC702)
95	$\overline{\text{POR WE}}$	O	Write enable signal output to the flash memory (IC702)
96	$\overline{\text{POR RE}}$	O	Read enable signal output to the flash memory (IC702)
97	—	O	Not used (open)
98	SE	O	SE control signal output to the flash memory (IC702)
99	WP	O	WP control signal output to the flash memory (IC702)
100	P17	O	Not used (open)

SECTION 5
EXPLODED VIEW

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.



Ref. No.	Part No.	Description	Remark
1	A-3293-987-A	MAIN BOARD, COMPLETE	
2	4-995-845-01	SPRING (SPEAKER)	
3	X-4950-256-1	LID ASSY, UPPER	
4	4-997-709-01	SHEET (P)	
5	4-995-841-11	CAP (PC)	
6	3-375-114-21	SCREW (M1.7X2.5)	
7	1-475-434-11	SWITCH UNIT (WITH JOG DIAL)	
8	4-995-839-31	CASE	
9	3-318-203-95	SCREW (B1.7), TAPPING	
10	4-995-842-01	TERMINAL (+. –), BATTERY	
11	4-995-840-11	LID, BATTERY CASE	
12	4-212-287-01	STRAP, HAND	

Ref. No.	Part No.	Description	Remark
15	4-998-440-01	SPACER (WINDOW)	
17	4-998-824-01	SHEET (W)	
19	4-998-748-01	SPRING (A)	
20	3-951-345-01	CUSHION, PANEL	
21	4-212-078-01	CUSHION (FPM)	
D503	1-517-711-11	LIGHT, LED BACK	
MIC101	1-542-334-11	MICROPHONE, ELECTRET CONDENSER (MIC)	
ND701	1-801-928-11	INDICATOR MODULE	
SP101	1-505-854-11	SPEAKER (2.8cm)	
W501	4-995-843-01	TERMINAL (+), BATTERY	
W502	4-995-844-01	TERMINAL (–), BATTERY	

MAIN

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-3293-987-A	MAIN BOARD, COMPLETE			
		**********			
	4-997-709-01	SHEET (P)			
	4-998-748-01	SPRING (A)			
	4-998-824-01	SHEET (W)			
		< BATTERY >			
BT501	1-528-834-11	BATTERY, POLYACENE SECONDARY			
		< CAPACITOR >			
C101	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C102	1-115-156-11	CERAMIC CHIP	1uF		10V
C103	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C104	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C105	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C106	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C107	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C108	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C109	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C110	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C111	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C112	1-113-619-11	CERAMIC CHIP	0.47uF		10V
C113	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C114	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C115	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C116	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C117	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C118	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C119	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C120	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C121	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C122	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C123	1-164-373-11	CERAMIC CHIP	0.033uF		25V
C124	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C125	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C127	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C128	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C129	1-117-379-21	CERAMIC CHIP	10uF		10V
C130	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C131	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C133	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C134	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C135	1-104-847-11	TANTALUM CHIP	22uF	20%	4V
C136	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C138	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C139	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C140	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C141	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C502	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C503	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C504	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C505	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C506	1-113-996-11	TANTALUM CHIP	220uF	20%	4V
C508	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C509	1-110-569-11	TANTALUM CHIP	47uF	20%	6.3V
C510	1-117-379-21	CERAMIC CHIP	10uF		10V
C511	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C513	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C701	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C702	1-162-944-11	CERAMIC CHIP	18PF	5%	50V
C703	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C704	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C705	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C707	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C709	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C710	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C711	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C712	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C713	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C714	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C715	1-164-360-11	CERAMIC CHIP	0.1uF		16V
		< CONPOSITION CIRCUIT BLOCK >			
CB701	1-125-769-11	CERAMIC CHIP	0.1uF		50V
		< CONNECTOR >			
* CN701	1-779-997-21	CONNECTOR, FPC (ZIF) 11P			
CN702	1-779-996-21	CONNECTOR, FPC (ZIF) 17P			
CN703	1-779-995-11	CONNECTOR, V RINK (DIGITAL I/O)			
		< DIODE >			
D101	8-719-059-52	DIODE MA143-TX			
D102	8-719-059-52	DIODE MA143-TX			
D501	8-719-049-09	DIODE 1SS367-T3SONY			
D502	8-719-067-42	DIODE MA2H735-(TX).SO			

Ref. No.	Part No.	Description	Remark
D701	8-719-421-27	DIODE MA728	
		< FERRITE BEAD >	
FB101	1-414-235-11	INDUCTOR CHIP 0uH	
FB102	1-414-235-11	INDUCTOR CHIP 0uH	
FB103	1-414-235-11	INDUCTOR CHIP 0uH	
FB104	1-414-235-11	INDUCTOR CHIP 0uH	
FB105	1-414-235-11	INDUCTOR CHIP 0uH	
FB106	1-414-235-11	INDUCTOR CHIP 0uH	
FB107	1-414-921-11	INDUCTOR CHIP 0uH	
FB501	1-414-921-11	INDUCTOR CHIP 0uH	
FB502	1-414-921-11	INDUCTOR CHIP 0uH	
FB701	1-414-595-11	INDUCTOR CHIP 0uH	
		< IC >	
IC101	8-759-487-81	IC MSM7560LGS-KDR1	
IC102	8-759-031-84	IC SC7S04F	
IC103	8-759-358-47	IC NJM2115V (TE2)	
IC104	8-759-701-51	IC NJM2072M	
IC105	8-759-347-33	IC NJM2113V-TE2	
IC106	8-759-486-46	IC SM5158AM-E2	
IC107	8-759-083-94	IC TC7W74FU	
IC501	8-759-486-55	IC NJM2370U33-TE2	
IC502	8-759-562-65	IC XC61AN2802MR	
IC503	8-759-562-66	IC XC61AN3102MR	
IC504	8-759-486-48	IC XC6372C351PR	
IC505	8-759-545-54	IC XC61AN1702MR	
IC551	8-759-497-27	IC XC62AP2102MR	
IC701	8-759-544-06	IC MN102L25DSD	
IC702	8-759-496-86	IC KM29V64000T-T	
IC703	8-759-082-60	IC TC7S66FU	
IC704	8-759-486-57	IC XC2141C21AMR	
IC705	8-759-488-29	IC TC7W66FU (TE12L)	
		< JACK >	
J101	1-568-027-11	JACK, SMALL TYPE (Ⓖ (EARPHONE))	
J102	1-568-027-11	JACK, SMALL TYPE (MIC, PLUG IN POWER)	
		< COIL >	
L503	1-414-865-11	INDUCTOR 47uH	
		< MICROPHONE >	
MIC101	1-542-334-11	MICROPHONE, ELECTRET CONDENSER (MIC)	
		< TRANSISTOR >	
Q101	8-729-429-44	TRANSISTOR XP1501	
Q102	8-729-037-63	TRANSISTOR UN9115J-(TX).SO	
Q103	8-729-037-72	TRANSISTOR UN9211J-(TX).SO	
Q104	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q105	8-729-039-57	TRANSISTOR DTC363EKT146	
Q106	8-729-037-72	TRANSISTOR UN9211J-(TX).SO	
Q107	8-729-037-76	TRANSISTOR UN9215J-(TX).SO	
Q501	8-729-402-16	TRANSISTOR XN4608	
Q502	8-729-046-70	TRANSISTOR XP4654-(TX).SO	
Q503	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q551	8-729-426-25	TRANSISTOR XP1212	
Q552	8-729-028-28	FET 2SK2036(TE85L)	

Ref. No.	Part No.	Description	Remark
Q701	8-729-037-74	TRANSISTOR UN9213J-(TX).SO	
Q702	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q703	8-729-037-63	TRANSISTOR UN9115J-(TX).SO	
Q704	8-729-426-25	TRANSISTOR XP1212	
Q705	8-729-037-72	TRANSISTOR UN9211J-(TX).SO	
Q706	8-729-037-72	TRANSISTOR UN9211J-(TX).SO	
		< RESISTOR >	
R101	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R102	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R103	1-216-815-11	METAL CHIP 330 5% 1/16W	
R104	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R105	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R106	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R107	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R108	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R109	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R110	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R111	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R112	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R113	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R114	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R115	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R116	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R117	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R118	1-216-805-11	METAL CHIP 47 5% 1/16W	
R119	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R120	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R121	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R122	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R123	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R124	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R125	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R126	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R127	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R128	1-216-817-11	METAL CHIP 470 5% 1/16W	
R129	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R130	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R131	1-218-296-11	RES,CHIP 75K 5% 1/16W	
R132	1-216-799-11	METAL CHIP 15 5% 1/16W	
R134	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R135	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R136	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R137	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R138	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R139	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R140	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R141	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R501	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R502	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R503	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R504	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R505	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R506	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R507	1-216-789-11	METAL CHIP 2.2 5% 1/16W	
R508	1-216-809-11	METAL CHIP 100 5% 1/16W	
R509	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R510	1-216-845-11	METAL CHIP 100K 5% 1/16W	

MAIN

Ref. No.	Part No.	Description			Remark
R511	1-216-821-11	METAL CHIP	1K	5%	1/16W
R512	1-216-833-11	METAL CHIP	10K	5%	1/16W
R513	1-216-845-11	METAL CHIP	100K	5%	1/16W
R514	1-216-853-11	METAL CHIP	470K	5%	1/16W
R515	1-216-853-11	METAL CHIP	470K	5%	1/16W
R516	1-216-849-11	METAL CHIP	220K	5%	1/16W
R517	1-216-845-11	METAL CHIP	100K	5%	1/16W
R701	1-216-850-11	METAL CHIP	270K	5%	1/16W
R703	1-216-839-11	METAL CHIP	33K	5%	1/16W
R704	1-216-839-11	METAL CHIP	33K	5%	1/16W
R705	1-216-850-11	METAL CHIP	270K	5%	1/16W
R708	1-216-855-11	METAL CHIP	680K	5%	1/16W
R709	1-216-845-11	METAL CHIP	100K	5%	1/16W
R710	1-216-809-11	METAL CHIP	100	5%	1/16W
R711	1-216-821-11	METAL CHIP	1K	5%	1/16W
R712	1-216-857-11	METAL CHIP	1M	5%	1/16W
R713	1-216-854-11	METAL CHIP	560K	5%	1/16W
R714	1-216-853-11	METAL CHIP	470K	5%	1/16W
R715	1-218-885-11	RES,CHIP	39K	0.5%	1/16W
R716	1-218-911-11	RES,CHIP	470K	0.5%	1/16W
R717	1-216-855-11	METAL CHIP	680K	5%	1/16W
R718	1-216-855-11	METAL CHIP	680K	5%	1/16W
R719	1-216-855-11	METAL CHIP	680K	5%	1/16W
R720	1-218-863-11	RES,CHIP	4.7K	0.5%	1/16W
R721	1-218-871-11	RES,CHIP	10K	0.5%	1/16W
R722	1-218-875-11	RES,CHIP	15K	0.5%	1/16W
R723	1-218-879-11	RES,CHIP	22K	0.5%	1/16W
R724	1-218-887-11	RES,CHIP	47K	0.5%	1/16W
R725	1-216-821-11	METAL CHIP	1K	5%	1/16W
R726	1-216-821-11	METAL CHIP	1K	5%	1/16W
R727	1-216-821-11	METAL CHIP	1K	5%	1/16W
R728	1-216-821-11	METAL CHIP	1K	5%	1/16W
R729	1-216-833-11	METAL CHIP	10K	5%	1/16W
R730	1-216-809-11	METAL CHIP	100	5%	1/16W
R731	1-216-809-11	METAL CHIP	100	5%	1/16W
R732	1-216-809-11	METAL CHIP	100	5%	1/16W
R733	1-216-809-11	METAL CHIP	100	5%	1/16W
R734	1-216-833-11	METAL CHIP	10K	5%	1/16W
R735	1-216-833-11	METAL CHIP	10K	5%	1/16W
R736	1-218-895-11	RES,CHIP	100K	0.5%	1/16W
R737	1-218-895-11	RES,CHIP	100K	0.5%	1/16W
R740	1-216-833-11	METAL CHIP	10K	5%	1/16W
R741	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R744	1-216-845-11	METAL CHIP	100K	5%	1/16W
R745	1-216-845-11	METAL CHIP	100K	5%	1/16W
R746	1-216-845-11	METAL CHIP	100K	5%	1/16W
R747	1-216-846-11	METAL CHIP	120K	5%	1/16W
R748	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R749	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R799	1-216-817-11	METAL CHIP	470	5%	1/16W
		< CONPOSITION CIRCUIT BLOCK >			
RB701	1-233-967-11	RES, NETWORK (CHIP TYPE) 10K			
RB702	1-233-969-11	RES, NETWORK (CHIP TYPE) 22K			
RB703	1-233-969-11	RES, NETWORK (CHIP TYPE) 22K			
RB704	1-233-967-11	RES, NETWORK (CHIP TYPE) 10K			

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV101	1-225-500-11	RES, VAR, CARBON 10K/10K (VOL)	
		< SWITCH >	
S501	1-692-481-11	SWITCH, KEY BOARD (RESET)	
S701	1-692-863-21	SWITCH, PUSH (1 KEY) (BATTRY LID OPEN/CLOSE DETECT)	
S702	1-771-274-11	SWITCH, TACTILE (ERASE)	
S703	1-771-274-11	SWITCH, TACTILE (STOP)	
S704	1-572-922-11	SWITCH, SLIDE (◄ HOLD)	
S705	1-771-274-11	SWITCH, TACTILE (REC)	
		< BATTERY TERMINAL >	
W501	4-995-843-01	TERMINAL (+), BATTERY	
W502	4-995-844-01	TERMINAL (–), BATTERY	
		< VIBRATOR >	
X701	1-760-928-21	VIBRATOR, CRYSTAL (32.768kHz)	
X702	1-767-759-11	VIBRATOR, CERAMIC (6.912MHz)	
X703	1-767-683-11	VIBRATOR, CERAMIC (10.368MHz)	
**********			
		MISCELLANEOUS	
		**********	
7	1-475-434-21	SWITCH UNIT (WITH JOG DIAL)	
D503	1-517-711-11	LIGHT, LED BACK	
ND701	1-801-928-11	INDICATOR MODULE	
SP101	1-505-854-11	SPEAKER (2.8cm)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	3-864-397-11	MANUAL, INSTRUCTION (ENGLISH)	